# PRACTICAL EXPERIENCE IN APPENDICITIS

BY

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IF ONE is to write on the trite subject of appendicitis at this late day, he cannot refrain from offering an apology for bringing the subject before his readers.

The flood of literature pertaining to the diseases of the appendix, in the last few years, makes one feel shy to take the appendix as a theme for discussion.

Where, however, much has been said upon a subject, even about an insignificant appendix, there must be still room for improvement, and a few additional remarks may be of interest.

When we only consider to what extent our small appendix gives us alarm, fright, worry, pain when it becomes inflamed, and how indifferently it attacks the rich and poor, the king and the ordinary mortal, the scientist and the dummy, the expert on the diseases of the appendix as well as the one who knows little about it. When we further consider the number of cases we meet with annually, the disastrous results which at times follows the apparent mild case of appendicitis, then we must not stop short and continue to write and discuss, until the appendix will discontinue to be a source of annoyance to mankind.

The appendix Vermiformis usually lies in the right iliac fossæ, behind and to the inner side of the cæcum, from which it is the termination. Sine the cæcum, however, does not occupy a fixed position, it follows that the appendix cannot always be expected to be found in the same place. When the peritoneum with which it is covered and mesentery which it possesses, becomes inflamed, and when adhesions begin to form, one must expect to find a contorted appendix, located and pointing in different directions. It may be directed

*Specimens presented at the meeting of the Alumni of Beth Israel Hospital, New York, on January 31, 1907.

behind or in front of the cæcum, or to either side of it. When, however, the appendix is filled with pus, or fœal concretions or anything which increases its weight, it will invariably be found thrown by gravity to the lower right quadrant in the abdomen, unless bound by adhesions at some other place.

Very often it is bent upon itself by adhesions, and when filled with pus constitutes an Empyema of the appendix.

The regularly manifested symptoms of appendicitis vary and are often in disproportion to the degree and extent of the inflammation. In the acute catarrhal form the patient is seized with sudden cramp-like pains, concentrically about the umbilicus, having a diameter of about six inches, in the first few hours, gradually localizing in the lower quadrant in the right side of the adbomen. The pain is boring and knife-like in character and is increased by moving the patient or during deep inspiration.

There is a sense of soreness and tenderness on the superficial part of the abdomen, and quite frequently the pain is referred to the right lumbar region, mostly when dealing with a retroceacal appendix.

The attack is usually ushered in with nausea and several attacks of vomiting, which last about twenty-four hours. With this there is mostly constipation, at times diarrhœa. From the statement of the patient, one is inclined to diagnosticate it at first as a case of indigestion or some form of gastro-intestinal disturbance.

The constitutional disturbance is variable. In one case it appears so slight that the patient does not imagine the seriousness of his illness, while in another the vital forces of almost every organ are so far divergent from normal that the sufferer considers himself afflicted with the most serious malady. The temperature at the onset may go up to one hundred and two (102) degrees F. and the pulse rate is increased to about one hundred and ten (110), due to excitement or to the absorption of intestinal products. These symptoms lessen on the second day of the attack, when the temperature comes down to one hundred (100) degrees F. or may be normal, the pulse being rarely above normal, but of slightly increased tension. The patient remains in bed on account of the pain, and not by reason of general disturbance.

On examination we notice superficial respiration, the abdominal respiration is almost at a standstill, owing to the rigidity of the right abdominal muscles. On placing the full palm of the left hand on the right lower quadrant of the abdomen the rigid muscles feel like a hard card-board. At this stage it is interesting to observe a characteristic diagnostic point in appendicitis, by having the patient lie upon the back, the feet resting on the bed and the knees being steadied by a third person. With the right hand gently press on the left side on the lower or upper quadrant of the abdomen, directing the abdominal contents of that side towards the diseased part, and there is invariably felt in about three out of every four cases, a tapping or knocking at the inner part of the rigid muscles, beneath the palm of the left hand, which corresponds to a point of the location of the diseased appendix.

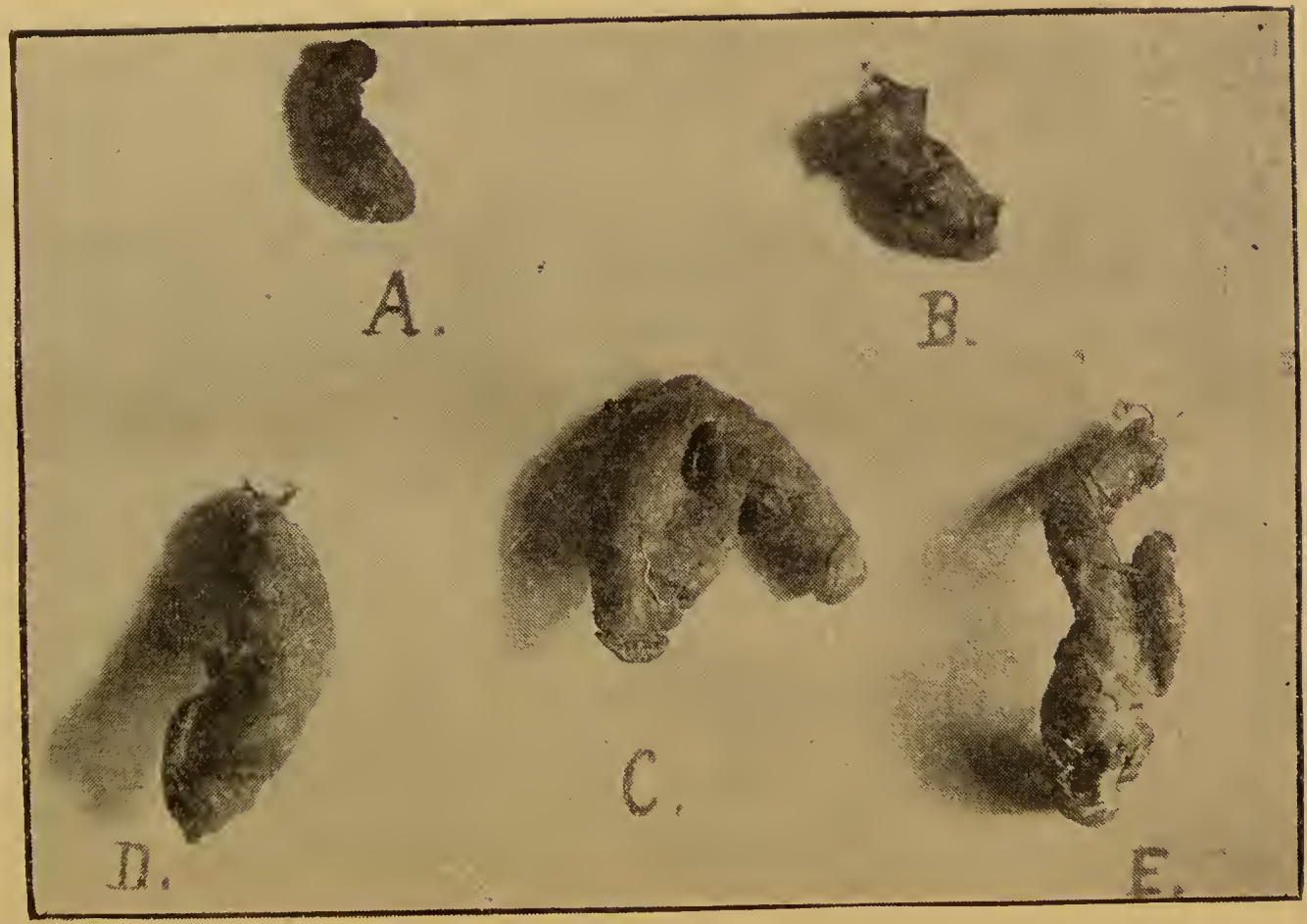
Percussing or auscultating the rigid muscles are useless and annoying to the patient. The symptoms gradually subside in from two to seven days, all subjective disturbances disappear, and the patient recovers from the first attack, but not from the pathological changes in the appendix. In cases of appendicitis with tumor and abscess formation, the symptoms are much greater. There are sharp pains in the whole abdomen, high fever, small and rapid pulse. The vomiting is persistent, often lasting two or three days, and later is bilious in character.

The abdominal muscular rigidity is more marked and the entire abdominal wall may be contracted or distended. The mildest pressure of the abdomen above the inflamed viscera causes pain, and it is in this state when the above referred to diagnostic point is of greatest value. The method of eliciting the point of greatest tenderness by pressing down with one finger is, to say the least, contra-indicated.

A newly formed abscess wall easily ruptures when attacked by a finger of blunted tactil sense. Usually on the third day the abscess is felt as a distinct tumor, having definite boundaries.

In those unfortunate cases in which the abscess is ruptured and a spreading peritonitis develops, there is a diffused pain all over the abdomen accompanied with increasing distension.

Where the abscess is formed and lies retroceacal, the anterior abdominal wall is not much affected, being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interposed by the resisting intestine. Those tumors which are the result of inflammatory induration of the cæcum are referred to by the patient as painful areas of the right lumbar region, and resemble tumors of the right kidney. Quite frequently most serious pathological lesions are encountered in which the appendix is gangrenous, or is sloughed in an abscess cavity, or is the seat of an empyema, while the clinical picture is astonishingly mild, resembling that of a catarrhal condition. It is in these cases that operative delay is most dangerous, and an accurate diagnosis and prompt action is very essential to save the patient's life.

The following is a group of cases in which the symptoms are severe and the pathological lesions very mild:

Case I—J. C., female, 28 years of age. Married six years; sterile. Always in perfect health. Six hours before I was summoned, the patient was seized with general cramps in the abdomen, which caused her to go to bed. She had vomited twice. Friends in the house applied hot poultices to her abdomen, and gave her a soapsuds enema. The pains were not relieved and the enema brought no results.

On examination I found a diffuse rigidity over the entire lower right quadrant, with marked tenderness. Temp., 102.6 F. Pulse, 108. I ordered ice to be applied to the painful area of the abdomen and a sweet oil enema. I returned the next morning and found the patient in severe pain, with knees flexed on the abdomen. Enemas were ineffectual. Temp., 102 F. Pulse, 130. I sent her to St. MaMrk's Hospital, New York, where I operated on her three hours after, and found a long catarrhal appendix in the right iliac fossa. Ovaries and tubes on both sides examined and found normal. The day after operation the patient's temperature was 99 F. and pulse 80. She left the hospital cured on the twelfth day.

Case II—M. H., female, 35 years of age. Married, has two children. She visited my clinic at the German Hospital dispensary, New York, regularly twice a week for about a year and a half, for pain in the right iliac region and for endonetritis. About three or four times in the year this pain in the appendical region became so severe that she had to go to bed and employ a physician. At times she returned with the diagnosis of appendicitis, made by men in different clinics. Her general condition otherwise was good. Bowels moved freely two and three times a day. Her last attack was so severe that she asked me to remove her appendix. The operation was made in a private sanitarium. I removed an appendix four inches long, slightly catarrhal, with white longitudinal streaks in the mucous membrane. The mucosa was atrophied and smooth. It resembled a cirrhosis of the appendix. The adnexa of the uterus were normal. Uneventful recovery.

Case III—B. H., female, 42 years of age. Gave birth to

eight children. Always in good health, except six months ago, when she suffered from a severe attack of colicky pain in the abdomen, which lasted two days. The present attack began four days ago with vomiting after considerable nausea, constipation and severe pain in the right iliac region. Her family physician, Dr. M. Cimberg, treated her very diligently and properly for appendicitis. Temp., 102 F. Pulse, 110. Tongue coated. After seeing the patient in consultation, I suggested removing her to St. Mark's Hospital, for observation. In the hospital I ordered high enemas, consisting of turpentine and soapsuds, which resulted in the expulsion of two large round worms, each about nine inches long. Two days later a similar enema brought one more worm of the same type. All symptoms of pain, temperature, etc., subsided, and the patient left the hospital cured on the sixth day without an operation.

Case IV—B. M., male, 40 years of age. Father of six children; no previous attack. Six months ago, his son, 18 years old, was operated on for appendicitis; two months later a son 15 years of age was also operated on for appendicitis. The father took sick five days ago with severe pain in the abdomen, which finally settled in the lower right quadrant of his abdomen. When I first saw him I was informed that he had been seen by three different physicians and that they all agreed that he had a fulminating attack of appendicitis. On examination I found a frozen section of the abdominal wall in the region of the appendix, the result of a continuous application of an ice-bag filled with ice and salt, for five days and five nights. Deep pressure with the full palm of the left hand elicited a resistance at McBurney's point. The patient looked much worried, and constantly kept his knees flexed, claiming to feel less pain when in that position. Temperature, 101 F. Pulse, 108. Two days later I operated on him, and removed an appendix three inches long, showing a mild catarrhal condition.

This group of cases represents a fair example of deceit between the alarming symptoms and the pathological findings, brought about by an attack of appendicitis. Had nature always been so kind as to guide the practitioner to advise operation, there would rarely be cause to mourn over patients frequently lost by unnecessary delay and postponement, with the hope of passing over an existing attack.

The following cases are "puzzles" and should be a warning to those who advise waiting with the operation for the next attack.

A group of cases with almost no symptoms to warrant serious pathological lesions.

Case V—M. I., male, 24 years of age. There had been no previous attacks. Five days ago the patient suffered from general pain in the epigastric region about one hour after breakfast, and subsequently on eating dinner became nauseated, and vomited soon after. The pain at this time extended all over the abdomen, but subsided towards evening after an effectual high enema with soap and water. The next morning the pa-

tient was well, and although he felt a slight pain in the right iliac fossa, he was able to make a heavy day's work at the machine in a cloak factory. This made the pain more severe, so that he went to bed after returning home. The physician who was called told him that it was indigestion. Another physician who had seen him 24 hours later, explained to him that it was an attack of one of those cases of appendicitis which amount to very little, and which usually subside in two days without interference.

Examination:—There is a rigidity diffused over the right lower quadrant slightly tender. This rigidity extends about two inches to the left of the linea alba. Temperature, 100. Pulse, 80; leucocytes, 14,000. Operation:—In the lower part of the cæcum is an abscess with a spreading peritonitis. The appendix was gangrenous and behind the cæcum. The wound was closed with drainage. The patient recovered and left the hospital in three weeks.

Case VI—M. R., female, 32 years of age. No previous attacks. Took to bed for pain in the right iliac fossa four days ago, after experiencing pain in the epigastric region the day before. There was some tenderness and two attacks of vomiting. Bowels moved freely after a dose of castor oil. Temperature, 99.8 F. Pulse, 70. Leucocytes, 16,000. This entire lower quadrant was tender and rigid. A mass the size of an orange could be felt.

Operation—The appendix was found in a mass of adhesions, curled up and bent upon itself at a right angle. The interior of the appendix was filled with pus, its tip was ruptured and the pus was escaping in drops. Fibrous bands had formed which held the appendix in that kinked position. (The appendix is illustrated in Fig. C). The patient left the hospital cured in sixteen days. Two months later the husband threatened to sue me for having afflicted pain and suffering to his wife and having subjected her life to great danger, by operating and removing her appendix unnecessarily, and that he was informed by the physician who treated her two days before I was called in that she had no appendicitis, and the operation was performed for the only purpose of practicing on his wife, and that he believes the statement of his former physician to be true. I showed him the specimen, which I luckily preserved in a small glass jar, bearing the name of his wife, and also opened my book containing a record of all my operative cases, and read to him the operative findings of his wife's case as described above. I have not heard of him since.

Case VII—B. S., female, 39 years of age, has complained for two days of epigastric pain, repeated vomiting and constipation. The following day the pain shifted to the lower right quadrant of the abdomen. The muscles in that region were painful and tender. Temperature, 101. Pulse, 84. On examination I felt a lemon-shaped mass, very painful on slight pressure. I advised immediate operation, and was promptly discharged from the case. The next day one of the family called to tell me that two different physicians had decided that the case was not operative. The patient had improved and felt much better from the medicines given. I heard nothing from this case until six days after my first call, when I was

again summoned. I found the patient sitting in bed, with her face bearing a septic look. She claimed to feel much better. On examination, I found a diffused tenderness all over the abdomen, equally painful in the left side as well as the right side. The lemon-shaped mass had entirely disappeared. The skin over the entire abdomen was somewhat doughy. I suggested sending her to St. Mark's Hospital for observation. The patient consented to go to the hospital, but would not go in an ambulance or carriage, and, to prove to me that she was able to go in the car, went out of bed and dressed in my presence. She subsequently went in a carriage to the hospital, but refused to give her consent for operation. The chart of the institution shows that she entered at 5 P. M.; temperature, 103. Pulse, 140. The next morning at 9 o'clock I saw her in bed asleep, with eyes half closed, cheeks flushed, skin bearing a death-like color. She died four hours later.

Diagnosis—Ruptured appendicitis, followed by diffused septic peritonitis. Autopsy was refused by the family.

No set of cases can more forcibly stand as a warning to prompt and early operative interference than the last three cases. The time when to operate and for how long a case should remain under observation cannot be definitely stated. The rule that a temperature above 100 F. and an increasing pulse rate, with co-existing tenderness in the right lower quadrant extending to the left side of the linea alba, is a positive indication for immediate operation, is good. Those cases, however, which have not such acutely palpable symptoms, should not be permitted to die for want of the missing sign. When we encounter patients with normal temperature and normal and sub-normal pulse rate, with only slight tenderness in the right iliac region, which are found at the operation to possess gangrenous appendices and abscesses, it will be a much safer rule to operate on the least suspicion of appendicitis.

A group of cases with symptoms pointing to different diseases:

Case VIII—J. E., male, 40 years of age, married. Laborer. Six months ago while attempting to leave a car which stopped suddenly, fell with the right side of his abdomen against the edge of the back of the seat in front of him. He soon after developed a right inguinal hernia. Three days since he suddenly felt sharp pains in the right lumbar region, headache and fever.

Examination: Patient is in bed, looks haggard and thin; temperature, 102 F.; pulse, 96; has not vomited. Bowels move daily. Abdomen soft on pressure and painless. In the right kidney region he complains of excruciating pains, shooting down the line of the right ureter. Urine examined and found normal. Operation: I proceeded to operate on the right inguinal hernia, and after opening the sac introduced my index finger into the abdomen, for definite diagnosis. I found a hard mass in the

abdomen. After completing the herniotomy on the Bassini method, I opened the abdomen three inches in length on the outer border of the right rectus muscle, and found on the posterior part of the abdominal cavity the cæcum and two inches of the ascending colon, very much thickened and hard. The blood vessels on the cæcum were tortuous and engorged with blood. The appendix (shown in specimen D) was firmly adherent from base to apex to the posterior surface of the cæcum, very much thickened and gangrenous. Several spectators at the operation believed it to be carcinoma of the cæcum, and ascending colon. The patient left the hospital cured in two weeks. Four weeks later he entered the Mount Sinai Hospital, where he underwent an operation for subphrenic abscess of the right side, likely the result of an infection carried up by the lymphatic channels or by infiltration through the retro-peritoneal tissue from the previous operation. The patient gained thirty pounds in eight months after the operation.

Case IX—M. H., female, 26 years of age, married. Had an attack of jaundice a year ago, which lasted one week. Four days later she felt a chilliness all over her body, with slight headache; vomited; constipation; very nervous; complains of pain in the back.

Examination: Skin is not jaundiced. Patient is in bed. Temperature, 100; pulse, 84. The abdominal muscles on the right side from the McBurney's region up is rigid and tender on slight pressure.

Operation: Gall bladder is normal in shape, color and size, and permitted to remain unopened. The appendix four and one-half inches long, inflamed and directed upward to about one inch from the fundus of the gall bladder, was removed. Patient left the hospital cured on the tenth day.

Case X—A. S., female; 39 years of age. No previous attack. Patient has always been in excellent health. Menstruated regularly. Four days ago she felt sudden cramps in the lower part of the abdomen equally severe on both sides. Vomited four times the first day and continued to vomit two and three times daily. On the day of operation the vomited material was fecal in character. Constipation was not relieved by repeated enemas. No flatus passed. Abdomen distended and rigid. Temperature, 101 F.; pulse, 84.

Operation: Incision in the median line below the umbilicus. The intestines were distended and covered with fibrin. Above the right iliac synchondrosis I found a walled off abscess cavity, which contained about an ounce of pus. The appendix, which was gangrenous (shown in specimen E), was ruptured immediately above the apex, I removed from within the cavity. The abscess cavity was carefully sponged out and drainage established. The day following the operation the patient had a good movement of the bowels. Temperature, 101; pulse, 84. Patient left the hospital three weeks after the operation, cured.

Case XI—A. C., female, 32 years old, married. Felt pain in the pelvic region about two months after her third confinement four years ago. The pain at that time lasted nine days, for which she remained in bed. Ever since then she has been suffering from leucorrhœa and pain in the pelvic region. On examination six months ago, I found an enlarged ovary and a

tender tube on the right side, for which I treated her twice a week. Two days before operation she complained of pain in the right pelvic region, vomited three to four times, and there was constipation not relieved by repeated enemas. Temperature, 99; pulse, 80.

Operation: Median incision. The right ovary is pressed together flat, the size of a silver dollar, the appendix adherent to it with the tip about three-fourths of an inch, is highly inflamed and angry looking. The appendix, right tube and ovary removed. The wound closed without drainage. The patient left the hospital two weeks after operation.

Case XII—M. W., female, 30 years of age, married. Gave birth to two children, the youngest one is four years old. Menstruated regularly every four weeks. Last menstruation was a week ago, after being two weeks overdue. Throughout the entire week she suffered from pain in the pelvic region, vomited a few times. Bowels moved regularly.

Examination: Patient is in bed. Temperature, 100; pulse, 80. Slight pressure over the right iliac fossa gives pain. Vaginal examination reveals a mass, the size of a peach in the right side, slightly movable and painful on upward pressure. On removing the finger it was stained with blood. Operation for Ectopic pregnancy. Median incision. The appendix was found acutely inflamed, with bands of adhesion extending from it to the right ovary, which was enlarged, and contained three small cysts. All adhesions slowly broken, I removed the appendix, punctured the existing cysts in the ovary, and permitted it to remain. The abdomen was closed without drainage. Uneventful recovery.

This group of cases well illustrates the wide range of symptoms the diseased appendix frequently gives.

Case nine had all the pathognomomic symptoms of gall bladder trouble, while on case ten very few surgeons would have doubted the existence of intestinal obstruction.

There is no known method to differentiate the existence of intestinal obstruction, gall bladder trouble, or right pelvic lesions from that of appendicitis, when the symptoms of one of the diseases is fused with that of the other.

The only friend and life saver to the patient in those cases is the knife in the hand of the surgeon who is ready to promptly meet every emergency he may encounter.

The next is a group of chronic cases of appendicitis with grave pathological lesions:

Case XIII—H. B., male, 12 years of age. Began to suffer from general cramps in the abdomen about twenty months ago. These painful attacks returned very frequently, almost every two or three weeks, but was always relieved by hot poultices and cathartics. He was seen by me for the first time two months before the operation during one of his attacks which

lasted two days. On examination at that time I found the abdominal muscles soft, with apparent relief from the pain on pressure. The most pain was immediately below the umbilicus. I put him on soft diet and ordered daily enemas which relieved him for the time being. Ten days later he had another attack. I then advised operation, which was objected to until the day before entering the hospital, when he was brought to my office in a doubled-up condition. The examination in the office revealed a hard tumor about 2 x 2 inches in dimension in the right iliac fossa.

Operation: The appendix (shown in specimen A) was short, thick and gangrenous, imbedded in a mass of adhesions at the lower and anterior part of the cæcum. Two bands of adhesions passed from it to a coil of small intestine. The patient left the hospital, cured, on the ninth day.

Case XIV—Rose N., 15 years of age, had three attacks during the year, each time remaining in bed about fourteen days. The last attack was a week before operation. Examination revealed slight tenderness on deep pressure in the right iliac region. On rectal examination, a hard mass could be felt in the appendical region.

Operation: The appendix was behind the cæcum, short, thick and black (shown in specimen B). It was bound down by adhesions. There was considerable inflammatory infiltration, which on separating brought to view about a drachm of pus. Complete recovery in two weeks.

Case XV—B. C., male, 19 years of age. Had no previous attacks. About ten days ago he had a slight chill, vomited and suffered from repeated nausea. Two days ago he began to feel a dull, aching pain with some tenderness in the appendix region. On examination there was no mass noticeable, but slight tenderness on pressure.

Operation: Appendix was three inches long and pressed down into the pelvis. There were several old adhesions and a sharp constriction in the center of the appendix. Uneventful recovery.

Case XVI—P. H., male, 43 years of age. Real estate broker. Had one attack two years ago, since then he experienced occasionally general cramps in the intestines. Four days before entering the hospital, strong pains returned in the right lower quadrant of the abdomen. Examination: Pulse and temperature, normal. On slight pressure the right lower part of the abdomen reveals a sausage-shaped mass about three inches long. Tender on mild pressure.

Operation: The appendix is two and a half inches long, twisted upon itself. The meso-appendix was much thickened and cord-like in consistency. Recovery.

Case XVII—B. F., male, 21 years of age. Had two previous attacks within 10 months. Six days ago pain returned in the right iliac region and at the umbilicus. No nausea or vomiting. Examination: No constitutional irregularity. At the site of pain there is rigidity and some tenderness.

Operation: The appendix was found imbedded in the retro-cæcal tissue, very much thickened and three and one-half inches long. Recovery.

Case XVIII—M. G., male, 26 years of age. Medical student. Suffered from articular and muscular rheumatism for the last 6 years. Six months prior to the operation he had an attack of pain in the right iliac region, which was diagnosed and treated for rheumatism of the psoas muscle. He remained in bed four days with all the symptoms of appendicitis and recovered. Three days before operation, the attack of pain in the right side returned with more severity than the last time. No vomiting. Temperature, 101; pulse, 80. Examination: Tenderness and slight rigidity in the right iliac region. Pain on deep pressure over the course of the right psoas muscle.

Operation: The appendix was removed from a bed of adhesions which had firmly fixed it to the sheath of the psoas muscle. No drainage. Primary union. Patient left the hospital on the fourteenth day.

This case is interesting from the fact that the patient was subject to attacks of rheumatic pains and may have had an attack of appendicitis superimposed on an underlying inflammation of the psoas muscle. It is very likely that the inflammatory state of the muscle has been the causative factor of the diseased appendix.

Many cases of the chronic form of appendicitis undoubtedly begin in an unnoticed manner and are in existence for many years.

A goodly number who have chronically diseased appendices pass through life without knowing or feeling the existence of a pathological lesion. This is borne out by the statistics of Byron Robinson in the *Annals of Surgery* of April, 1901, who has found many diseased appendices out of three hundred (300 male and 118 female adult autopsies made by him. Many of them were adherent to the psoas muscle.

Among the most difficult cases of chronic appendicitis to diagnose are those in which there are practically no other symptoms than those of dyspepsia and intestinal indigestion. If on careful palpation and deep pressure in the right iliac fossæ, and simultaneous examination with the index finger of the other hand in the rectum, the appendix is found enlarged or tender, it is best to remove it.

These chronically diseased appendices when permitted to remain might at any time terminate in a suppurative or gangrenous attack without the least warning.

## CONCLUSIONS.

I. When on placing the left palm on the rigid muscles of the lower right quadrant, and on gentle pressure with the other hand on the left side of the obdo-

men, an impulse or beat is felt, the diagnosis of appendicitis can be conclusively made.

II. Severe symptoms are not always signs for grave pathological lesions, and conversely mild symptoms are in many cases accompanied with most serious pathological processes.

III. Never omit to order an enema with turpentine as long before the operation as possible, to give the patient the benefit of the doubt, if you suspect intestinal worms.

IV. The application of ice, sufficient to completely freeze the abdominal wall and viscera beneath it, is a scientific blunder equal to the giving of morphine to cure the malady. It masks the symptoms and is liable to cause gangrene of the skin.

V. Always save the pathological specimen, preserve it and have it carefully labelled with the name and address of the patient from whom it was removed. It is valuable evidence in conjunction with careful records of the case, in suits for malpractice or any other medico-legal complication which may unexpectedly arise.

VI. Probable diagnosis of appendicitis is sufficient cause for surgical intervention, while missing links to the chain of symptoms, to make a positive diagnosis, may deprive the patient's chance of recovery through operative delay.

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